CDC Cancer Clusters

The Public Health Problem

A cancer cluster is defined as a greater-than-expected number of cancer cases that occurs within a group of people in a geographic area over a period of time. The complex nature of cancer makes it inherently challenging to identify, interpret, and address cancer clusters. Cancer is a term representing many diseases with a variety of causes. The time between exposure to a cancer-causing agent, or the existence of other risk factors, and the development of cancer can be decades; therefore, causes are hard, and in some cases impossible, to identify. Cancer cases are more likely to represent a cancer cluster if they involve (1) one type of cancer, (2) a rare type of cancer, or (3) a type of cancer in a group not usually affected by that cancer, such as a cancer in children that is normally seen in adults. However, cases of common cancers are those most often perceived and reported by the public as being part of a cancer cluster.

Confirmation of a cancer cluster does not necessarily mean that there is any single, external cause or hazard that can be identified. A confirmed cancer cluster could be the result of (1) chance, (2) miscalculation of the expected number of cancer cases (e.g., not considering a risk factor within the population at risk), (3) differences in the case definition between observed cases and expected cases, (4) known causes of cancer (e.g., smoking), and (5) unknown cause(s) of cancer. Follow-up investigations can be done but can take years to complete, and in most instances, no cause is found. Usually, a local or state health department provides the first response to a suspected cancer cluster. The local or state health department gathers information about the suspected cancer cluster (e.g., types of cancer, number of cases, addresses and occupations of those people with cancer, possible causes), develops and applies the case definition, and determines whether there is a greater-than-expected number of cases.

CDC Activities

From 1961 to 1982, CDC investigated 108 reported cancer clusters in 29 states and 5 foreign countries in an attempt to identify a single cause of cancer; however, no clear cause was determined for any of the reported clusters. Since the mid-1980s, no CDC staff members have been dedicated to working full-time to identify and investigate cancer clusters. In June 2002, CDC's National Center for Environmental Health (NCEH) began to operate the Cancer Cluster Triaging System (CCTS), which provides responses to the public's inquiries about cancer clusters. CCTS is a joint effort of NCEH, CDC's Cancer Prevention and Control Program, CDC's National Institute for Occupational Safety and Health, and the Agency for Toxic Substances and Disease Registry.

Next Steps

CDC is conducting an assessment of state-based cancer cluster investigation protocols and is gathering input from state officials through workshops and other meetings. The final report will provide information and lessons learned that states can use to conduct cancer cluster investigations.

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